



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,475	05/11/2001	James E. Justiss	PD-200065 (BOE 0173 PA)	6670
7590	09/01/2005		EXAMINER MEHRPOUR, NAGHMEH	
Kevin G. Mierzwa Artz & Artz, P.C. Suite 250 28333 Telegraph Road Southfield, MI 48034			ART UNIT 2686	PAPER NUMBER

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,475

Applicant(s)

JUSTISS ET AL.

Examiner

Naghmeh Mehrpour

Art Unit

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/4/05 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-14, are rejected under 35 U.S.C. 102(e) as being anticipated by
Collines et al. (US Publication 2005/0159128 A1).

Regarding claim 1, Collins teaches a method of digitally canceling interference on a received signal comprising adaptively canceling interference on the received signal

using an interference reference feedback signal, **the feedback signal acquired downstream from a digital processor (0023, 0024, 0038).**

Regarding claim 2, Collins teaches a method further comprising subtracting an counter-interference signal from the received signal to form a desired signal (see figures 1-4, 0026).

Regarding claim 3, Collins teaches a method further comprising digitally processing said desired signal to generate said feed back interference reference signal (0026).

Regarding claim 4, Collins teaches a method further comprising correlating said interference reference feedback signal to said desired signal to generate an error signal (see figures 1-4, 0026, 0027).

Regarding claim 5, Collins teaches a method wherein adaptively canceling interference on the received signal farther comprising generating said counter-interference signal 24 based on said error signal to cancel said interference (see figures 1-4, 0026).

Regarding claim 6, Collins teaches a method wherein adaptively canceling interference further comprises iteratively canceling interference on the received signal until said error signal equals zero (0026).

Art Unit: 2686

Regarding claim 7, Collins teaches a method wherein said adaptively canceling interference further comprises digitally and accurately replicating the interference (0026, 0031).

Regarding claim 8, Collins teaches a method further comprising simultaneously digitally canceling interference on a plurality of received signals (see figure 1, 0024).

Regarding claim 9, Collins teaches a method further comprising sequentially digitally canceling interference on a plurality of received signals (00056).

Regarding claim 10, Collins teaches a method of canceling interference within the satellite payload (0024) comprising:

- receiving a communication signal having interference (0024);
- converting said communication signal into the received signal (0029);
- a subtract or subtracting a counter-interference signal from the received signal to form a desired signal (0026, 0031);
- a correlator correlating said interference reference feedback signal to said desired signal to generate an error signal (0032);
- adaptively canceling interference on the received signal based on said error signal by generating said counter-interference signal to cancel said interference (0030-0032).

Regarding claim 11, Collins teaches a satellite communication system (see figure 1) comprising:

a first antenna for receiving a communication signal (see figure 1, 0024);

an analog-to-digital converter (ADC) electrically coupled to said first antenna, said ADC converting said communication signal to a received signal (0029-0030);

a satellite payload circuit comprising a first input, a second input, and an output, said first input is electrically coupled to said ADC (see figures 1-4, 0024, 0029);

said satellite payload circuit digitally processing said received signal to form an interference reference feedback signal (0024, 0029-0030);

a feedback signal path electrically coupling said output to said second input said feedback signal path transferring said interference reference feedback signal from said output to said second input (see figures 3-4, 0038-0040).

Regarding claim 12, Collins teaches a system wherein said communication circuit (see figure 1,0024) comprises:

a subtractor electrically coupled to said ADC, said subtractor subtracting a counter-interference signal from said received signal to form a desired signal (0026, 0030-0031);

a digital processor electrically coupled to said subtractor, said digital processor generating said interference reference feed back signal from said desired signal (0029-0030);

a correlator electrically coupled to a subtractor (0026, 0030-0031), said correlator comparing a interference reference feedback signal to said desired signal to generate an error signal (0031-0032); and

a controller electrically coupled to said correlator and said subtractor (0030-0031);

said controller adaptively canceling interference on said received signal based on said error signal (0032-0033, 0040-0042).

Regarding claim 13, Collins teaches a communication system (see figure 1, 0024) comprising:

a first antenna for receiving a communication signal (0024);

an analog-to-digital converter (ADC) electrically coupled to said first antenna, said ADC converting said communication signal to a received signal (0029);

a subtractor electrically coupled to said ADC (0029-0031), said

subtractor subtracting a counter-interference signal from said received signal to form a desired signal (0030-0032);

a digital processor electrically coupled to said subtractor, said digital processor generating said interference reference feed back signal from said desired signal (0030-0031);

a correlator electrically coupled to said summing junction, said correlator comparing said interference reference signal to said desired signal to generate an error signal (0030-0031); and

a controller electrically coupled to said substractor and said controller adaptively canceling interference on said received signal based on said error signal(0030-0032).

Regarding claim 14, Collins teaches a method of digitally canceling interference on a received signal within a satellite payload comprising adaptively canceling interference on the received signal using an interference reference feedback signal and not using a non-feedback interference signal (see figure 1, 0024, 0026, 0038).

Response to Arguments

4. Applicant's arguments with respect to claims 1-14, have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. **Any responses to this action should be mailed to:**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Naghmeh Mehrpour whose telephone number is 571-272-7913. The examiner can normally be reached on 8:00- 6:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold be reached (571) 272-7905.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NM

August 30, 2005



MELODY H. P. O'NEIL
PATENT EXAMINER